CHAPTER 2

MONITORING AND EVALUATION OF THE BASIC COMPONENTS IN GEORGE WASHINGTON PLAN CHAPTER 5

MANAGEMENT AREA 4

MONITORING ITEM	**BIOLOGICAL AREAS**
MONITORING QUESTION(S)?	Were individual implementation schedules for each Biological SIA prepared?
MONITORING LEVEL	Implementation
THRESHOLD OF ACCEPTABLE CHANGE	Minimum of four Plans prepared each year is not met.
FINDINGS	Work began in 1993 for preparing an establishment report for Maple Flats Research Natural Area (RNA). The Virginia Division of Natural Heritage prepared a final establishment report. The GWJEFF concluded that Maple Flats was not suitable for RNA designation. Due to declining budgets the Forest has not been able to establish additional agreements with the Virginia Division of Natural Heritage or West Virginia Department of Natural Resources to develop implementation schedules for SIA's.
RECOMMENDATION	No changes to plan direction are recommended.
MONITORING ITEM	**BIOLOGICAL AREAS**
MONITORING QUESTION(S)?	Was vegetation manipulation for the management of the area's biological value or for threatened, endangered, or sensitive species or their habitats?
MONITORING LEVEL	Implementation
THRESHOLD OF ACCEPTABLE CHANGE	Vegetation manipulation must be designed to achieve the desired future described for this management area.
FINDINGS	About 500 acres (New Road Run on Dry River Ranger District) was treated in MA 4 in FY 2001. In 2002, about 535 acres across 3 Ranger Districts were burned (Spruce Ridge, Buck Mtn Block 5, and Hogback on Dry River, Lee, and Deerfield R.Ds). In 2003, no acres within MA 4 were burned.
RECOMMENDATION	No changes to plan direction are recommended.

MONITORING ITEM	**BIOLOGICAL AREAS**
MONITORING QUESTION(S)?	Were viable populations maintained in suitable habitat?
MONITORING LEVEL	Effectiveness
THRESHOLD OF ACCEPTABLE CHANGE	Negative population trends in two consecutive surveys.
FINDINGS	No occurrence of any species for which a Management Area 4 was established has been lost. Individual populations of plant and animal species fluctuate from year-to-year due to a variety of factors including seasonal weather events and species reproduction/establishment traits. Tracking the number and location of occurrences monitors populations. This gives a better indication of overall species condition across the Forest as opposed to the number of individuals within a given occurrence that may naturally fluctuate widely due to often-unknown causes. In some cases the individuals of a given occurrence are monitored to better understand the biology of a species. To date no negative trends have been found. See discussion related to Management Indicator Species (MIS) in Appendix G of this report.
RECOMMENDATION	No changes to plan direction are recommended.
MONITORING ITEM	**HISTORIC SITES**
MONITORING QUESTION(S)?	Were potentially eligible sites protected from disturbance?
MONITORING LEVEL	Implementation
THRESHOLD OF ACCEPTABLE CHANGE	No evidence of damage to sites.
FINDINGS	No potentially eligible sites were impacted. Historic structures continue to need preservation and rehabilitation. Neglect continues due to a lack of funding and the search for preservation partners continues.
RECOMMENDATION	No changes to plan direction are recommended.
MONITORING ITEM	**HISTORIC SITES**
MONITORING QUESTION(S)?	Are existing National Register sites protected?
MONITORING LEVEL	Implementation
THRESHOLD OF	No evidence of damage to sites.

ACCEPTABLE CHANGE

FINDINGS Mt. Torrey Furnace partially collapsed during Hurricane Isabel.

RECOMMENDATION No changes to plan direction are recommended as we continue to seek funding for site maintenance.

MONITORING ITEM **GEOLOGIC SITES**

MONITORING QUESTION(S)? Were geologic sites protected from disturbance?

MONITORING LEVEL Implementation

THRESHOLD OF ACCEPTABLE CHANGE No evidence of damage to sites.

FINDINGS No reports of damage to Devils Garden or Rainbow Rocks. In August 2002 at the Trout Pond Recreation Area on the Lee Ranger District, Trout Pond (a stream-fed sinkhole pond) had sudden drops in water levels, leaving a very small pool of water in the pond. Tilted fences along the trail indicated subsidence of this sinkhole. Because of potential safety problems related to sinkhole activity, a closure order was issued in September 2002 for Trout Pond and the trail around it. After heavy rains in October 2002, Trout Pond returned to normal pond elevations after the sudden drops in water levels in August. Continued monitoring during the winter allowed the closure order issued in September 2002 to be lifted. In August 2003 a new sinkhole opened along edge of paved road just south of sinkhole 5 in a report "Geology and Karst of Trout Pond Recreation Area, Hardy County, West Virginia". The new sinkhole was excavated and back-filled with riprap.

RECOMMENDATION No changes to plan direction are recommended. Recommend that the Lee Ranger District and Forest geologist monitor the sinkhole activity at Trout Pond. Recommend that the District contact the Forest geologist if new sinkhole activity occurs.

MANAGEMENT AREA 5

MONITORING ITEM **VISUAL QUALITY**

MONITORING QUESTION(S)? Did management practices result in attaining a VQO of retention?

MONITORING LEVEL Effectiveness

THRESHOLD OF ACCEPTABLE CHANGE Visual quality does not meet the definition of retention.

FINDINGS	A retention VQO is met in MA 5 as seen from major travel routes. Casual observers on these travel routes do not notice forests that have been defoliated and those with overstories killed by southern pine beetle. If appropriate and if funding becomes available, the short-term rehabilitation VQO will be adopted and applied to management activities.
RECOMMENDATION	No changes to plan direction are recommended.
MONITORING ITEM	**VISUAL QUALITY**
MONITORING QUESTION(S)?	Where was a short-term VQO of rehabilitation adopted to address restoration of the scenery resources?
MONITORING LEVEL	Implementation
THRESHOLD OF ACCEPTABLE CHANGE	Viewshed does not meet the definition of retention.
FINDINGS	In FY 2001, 2002, and 2003 there were no areas in MA 5 where rehabilitation VQO was adopted.
RECOMMENDATION	No changes to plan direction are recommended.

MANAGEMENT AREA 6

MONITORING ITEM	**VISUAL QUALITY**
MONITORING QUESTION(S)?	Did management practices result in attaining a visual quality objective of retention?
MONITORING LEVEL	Effectiveness
THRESHOLD OF ACCEPTABLE CHANGE	Visual quality does not meet the definition of retention.
FINDINGS	Management practices have met Retention VQO with exception of some gypsy moth defoliated forests and overstories killed by southern pine beetle. These areas are being left to grow naturally.
RECOMMENDATION	No changes to plan direction are recommended.
MONITORING ITEM	**VISUAL QUALITY**
MONITORING QUESTION(S)?	Where was a short-term VQO of rehabilitation adopted to address restoration of the scenery resources?
MONITORING LEVEL	Implementation
THRESHOLD OF	Viewshed does not meet the definition of retention.

ACCEPTABLE CHANGE

FINDINGS	A short-term rehabilitation VQO was not adopted anywhere in MA 6 during FY 2001, 2002, or 2003.
RECOMMENDATION	No changes to plan direction are recommended.
MONITORING ITEM	**VISUAL QUALITY**
MONITORING QUESTION(S)?	Are management practices visible from the AT at least meeting the adopted VQO of the applicable management area?
MONITORING LEVEL	Effectiveness
THRESHOLD OF ACCEPTABLE CHANGE	Management practices do not meet the adopted VQO.
FINDINGS	All management activities that are visible from the AT meet the VQOs as adopted for the applicable management areas.
RECOMMENDATION	No changes to plan direction are recommended.

MANAGEMENT AREA 7

MONITORING ITEM	**VISUAL QUALITY**
MONITORING QUESTION(S)?	Did management practices result in attaining the appropriate VQO?
MONITORING LEVEL	Effectiveness
THRESHOLD OF ACCEPTABLE CHANGE	Visual quality does not meet the definition of retention or partial retention.
FINDINGS	Rich Mountain project reviewed in 2002 and the appropriate long-term VQO is being met.
RECOMMENDATION	No changes to plan direction are recommended.
MONITORING ITEM	**VISUAL QUALITY**
MONITORING QUESTION(S)?	Where was a short-term VQO of rehabilitation adopted to address restoration of the scenery resources?
MONITORING LEVEL	Implementation
THRESHOLD OF ACCEPTABLE CHANGE	Viewshed does not meet the definition of retention (MA 7) Viewshed does not meet the definition of partial retention (MA 7).

FINDINGS There were no areas in MA 7 where a short-term VQO of rehabilitation was adopted to address the restoration of the scenery resources.

RECOMMENDATION No changes to plan direction are recommended.

MONITORING ITEM **TIMBER**

MONITORING QUESTION(S)? Did harvesting occur only on land identified as suitable in the Revised Forest Plan?

MONITORING LEVEL Implementation

THRESHOLD OF ACCEPTABLE CHANGE Noncompliance with standard.

FINDINGS Suitability determination is being documented in each project level analysis. Criteria on Plan Appendix page A-5 are compared with actual specific site conditions. The suitable timberland managed in Fiscal Years 2001 through 2003 is displayed in the following table.

Fiscal Year	Suitable Timberland In MA 7 (Sold Acres)
2001	30
2002	0
2003	0

RECOMMENDATION No changes to plan direction are recommended.

MONITORING ITEM **TIMBER**

MONITORING QUESTION(S)? Were there changes in the amount of land identified as suitable?

MONITORING LEVEL Validation

THRESHOLD OF ACCEPTABLE CHANGE A change of $\pm$ 10% in land suitability as compared with the 12,000 suitable acres of this management area based on project-level analysis (MA 7).

FINDINGS See above discussion.

RECOMMENDATION No changes to plan direction are recommended.

MONITORING ITEM **TIMBER**

MONITORING QUESTION(S)? Is regeneration harvesting designed to meet the desired future? (MA 7)

MONITORING LEVEL Implementation

THRESHOLD OF ACCEPTABLE CHANGE Any decision to regenerate areas must be consistent with achieving the desired future of the management area (MA 7)

FINDINGS All project-level environmental analyses identify the Purpose and Need for that particular activity. Projects are being designed to meet the Desired Future Condition of the particular management area.

RECOMMENDATION No changes to plan direction are recommended.

MANAGEMENT AREA 8

MONITORING ITEM **WILDERNESS**

MONITORING QUESTION(S)? Have wilderness implementation schedules been prepared or revised, as needed?

MONITORING LEVEL Implementation

THRESHOLD OF ACCEPTABLE CHANGE One schedule prepared or revised per year is not met.

FINDINGS Implementation schedules were not updated in any of the three fiscal years due to changes in out-year budgeting advice and process (BFES). Updates are scheduled for FY 2004 and 2005.

RECOMMENDATION No changes to plan direction are recommended.

MONITORING ITEM **WILDERNESS**

MONITORING QUESTION(S)? Have actions been taken on areas where social and physical impacts exceed the "Limits of Acceptable Change" standards?

MONITORING LEVEL Implementation

THRESHOLD OF ACCEPTABLE CHANGE No action has been taken to correct the impact.

FINDINGS Some “satellite” sites were naturalized in St. Mary's and Ramsey's Draft Wildernesses in FY 2001 and 2003. A minor amount of site rehabilitation and obliteration occurred in St. Mary’s and Ramsey’s Draft in FY 2002 and 2003. Identified sites will continue to be rehabilitated as funding permits.

RECOMMENDATION No changes to plan direction are recommended.

MONITORING ITEM	**WILDERNESS**
MONITORING QUESTION(S)?	Are areas recovering to a natural and undisturbed appearance due to corrective actions and rehabilitation efforts?
MONITORING LEVEL	Effectiveness
THRESHOLD OF ACCEPTABLE CHANGE	"Limits of Acceptable Change" standards are not met.
FINDINGS	Ongoing qualitative monitoring indicates naturalizing the "satellite" sites near established campsites in wilderness is reducing physical impacts. Closures in St. Mary's and Forestwide group size limits appear to be controlling established campsite growth and impact in the George Washington Wildernesses.
RECOMMENDATION	No changes to plan direction are recommended.

MANAGEMENT AREA 9

MONITORING ITEM	**RECREATION**
MONITORING QUESTION(S)?	Are opportunities for primitive recreation and solitude being provided?
MONITORING LEVEL	Implementation
THRESHOLD OF ACCEPTABLE CHANGE	Failure of inventoried SPNM ROS areas to meet the criteria for SPNM ROS recreation opportunities.
FINDINGS	No failures known. Semi-primitive non-motorized recreation opportunities continued to be provided.
RECOMMENDATION	No changes to plan direction are recommended.
MONITORING ITEM	**WILDLIFE**
MONITORING QUESTION(S)?	To what extent are changes to the ecosystem induced by management activities?
MONITORING LEVEL	Implementation
THRESHOLD OF ACCEPTABLE CHANGE	Management activities, which treat more than 10% of the area, are not considered light-on-the-land.
FINDINGS	The amount of activity within this Management Area in Fiscal Years 2001 through 2003 is displayed in the following table.

Fiscal Year	Prescribed Burning in MA 9 (Acres)
2001	0
2002	0
2003	0

RECOMMENDATION No changes to plan direction are recommended.

MANAGEMENT AREA 10

MONITORING ITEM **RECREATIONAL AND SCENIC RIVERS**

MONITORING QUESTION(S)? Have management activities precluded river segments from further consideration as scenic rivers? Have management activities precluded river segments from further consideration as recreational rivers?

MONITORING LEVEL Effectiveness

THRESHOLD OF ACCEPTABLE CHANGE Presence of management practices that disqualify the river segments for scenic river designation. Presence of management practices that disqualify the river segments for recreational river designation.

FINDINGS No known actions in eligible stream corridors which would preclude consideration for designation in either classification.

RECOMMENDATION No changes to plan direction are recommended.

MONITORING ITEM **SCENIC RIVERS**

MONITORING QUESTION(S)? Did management practices result in attaining a VQO of retention?

MONITORING LEVEL Effectiveness

THRESHOLD OF ACCEPTABLE CHANGE Visual quality does not meet the definition of retention.

FINDINGS Management practices are meeting the retention VQO.

RECOMMENDATION No changes to plan direction are recommended.

MONITORING ITEM **RECREATIONAL RIVERS**

MONITORING QUESTION(S)? Did management practices result in attaining a VQO of partial retention?

MONITORING LEVEL Effectiveness

THRESHOLD OF ACCEPTABLE CHANGE	Visual quality does not meet the definition of partial retention.
FINDINGS	Management practices are meeting the partial retention VQO.
RECOMMENDATION	No changes to plan direction are recommended.

MANAGEMENT AREA 11

MONITORING ITEM	**RECREATION**
MONITORING QUESTION(S)?	Are OHV routes being maintained in a manner that minimizes the effects of OHV use?
MONITORING LEVEL	Effectiveness
THRESHOLD OF ACCEPTABLE CHANGE	Unacceptable resource damage is not corrected in a timely manner.
FINDINGS	Ongoing maintenance is occurring in ATV/OHV areas. Watershed impacts and erosion problems are identified and corrected. User impacts are significant and maintenance costs are high. In FY 2001, maintenance was performed on OHV routes at the Taskers Gap and Rocky Run OHV areas. In FY 2002, maintenance continued at Rocky Run.
RECOMMENDATION	No changes to plan direction are recommended.

MONITORING ITEM	**RECREATION**
MONITORING QUESTION(S)?	Are licensed OHV routes stated in Plan Table 3-5 and Appendix J offering a 4-wheel drive experience, which meets the needs of its users? Do constructed motorized routes (ATV) provide an interesting and challenging ride?
MONITORING LEVEL	Effectiveness
THRESHOLD OF ACCEPTABLE CHANGE	Survey reveals poor route conditions, hazards, or user conflicts.
FINDINGS	There continues to be increased demand for more 4-wheel drive routes forestwide. All OHV areas are receiving increase use from the previous report in FY 2000 given the maintenance needs that were done. No surveys were conducted on user satisfaction, but demand for both ATV and 4WD routes are increasing based on vehicle sales. South Pedlar ATV area received another TEA-21 grant for trail maintenance in 2003.
RECOMMENDATION	No changes to plan direction are recommended.

MONITORING ITEM **TIMBER**

MONITORING QUESTION(S)? Did harvesting occur only on land identified as suitable in the Revised Forest Plan?

MONITORING LEVEL Implementation

THRESHOLD OF ACCEPTABLE CHANGE Noncompliance with standard.

FINDINGS Suitability determination is being documented in each project level analysis. Criteria on Plan Appendix page A-5 are compared with actual specific conditions. The suitable timberland managed in Fiscal Years 2001 through 2003 is displayed in the following table.

Fiscal Year	Suitable Timberland In MA 11 (Sold Acres)
2001	0
2002	0
2003	0

RECOMMENDATION No changes to plan direction are recommended.

MONITORING ITEM **TIMBER**

MONITORING QUESTION(S)? Were there changes in the amount of land identified as suitable?

MONITORING LEVEL Validation

THRESHOLD OF ACCEPTABLE CHANGE A change of ± 10% in land suitability as compared with the 3,000 suitable acres of this management areas based on project-level analysis.

FINDINGS See above discussion.

RECOMMENDATION No changes to plan direction are recommended.

MONITORING ITEM **TIMBER**

MONITORING QUESTION(S)? Are roads for timber removal also planned and designed to meet motorized recreation objectives?

MONITORING LEVEL Implementation

THRESHOLD OF ACCEPTABLE CHANGE Any decision to remove timber which doesn't consider the motorized recreation desired future.

FINDINGS The project level environmental analysis identified impacts and provided mitigating measures for nearby ATV motorized recreation desired future conditions.

RECOMMENDATION No changes to plan direction are recommended.

MANAGEMENT AREA 12

MONITORING ITEM **RECREATION**

MONITORING **QUESTION(S)?** Are developed recreation facilities safe and properly maintained for visitor safety and comfort?

MONITORING LEVEL Effectiveness

THRESHOLD OF ACCEPTABLE CHANGE Unsafe conditions are not corrected before facilities are made available to the public.

FINDINGS All recreation sites were inspected, and all needed corrective actions were taken. Developed recreation areas have been and will continue to be surveyed on an on-going basis for unsafe conditions. Problems are continually corrected or area (site) is closed.

RECOMMENDATION No changes to plan direction are recommended.

MONITORING ITEM **RECREATION**

MONITORING QUESTION(S)? Are existing developed recreation facilities accessible to visitors with disabilities as covered by Federal Law? Are newly constructed or reconstructed developed recreation facilities accessible to visitors with disabilities in accordance with Federal guidelines?

MONITORING LEVEL Implementation

THRESHOLD OF ACCEPTABLE CHANGE Inaccessible facilities are reconstructed to permit access to disabled visitors. Constructed and reconstructed facilities must be accessible.

FINDINGS **I**n FY 2001, a programmatic transition plan was completed. The Forest has made considerable progress in providing for universal access.

Three areas, Brandywine, Trout Pond, and Sherando Lake offer persons with disabilities opportunities to have complete recreation experiences. Trout Pond and Sherando Lake swimming sites are now accessible for persons with disabilities. Fortney Branch, Longdale, Morris Hill and Coles Point have had extensive rehabilitation of existing facilities and are fully accessible. Several other major recreation facilities offer accessible facilities but are limited by inaccessible toilets. All additional rehabilitation work will have accessibility considered.

All new construction and reconstruction projects are planned to meet the objective.

RECOMMENDATION No changes to plan direction are recommended.

MONITORING ITEM **RECREATION**

MONITORING QUESTION(S)? Have proposed new developed recreation sites been constructed? Have existing developed recreation sites been expanded?

MONITORING LEVEL Implementation

THRESHOLD OF ACCEPTABLE CHANGE **C**onstruction is dependent upon funding and volunteer/partner interest. If funding is not received, Appendix B of the Revised Plan will be will be updated.

FINDINGS Regular appropriated funding is not likely to be available for expansion or construction of new sites or for rehabilitation of existing areas. Several districts have planned to use fee-demo funds to expand or rehabilitate existing areas. Major rehabilitation work is underway and planned for Sherando Lake. The forest has undertaken a program of new and replacement SST installation using appropriated dollars.

RECOMMENDATION No changes to plan direction are recommended.

MANAGEMENT AREA 13

MONITORING ITEM **RECREATION**

MONITORING QUESTION(S)? Are dispersed areas of concentrated use resulting in significant damage to the environment?

MONITORING LEVEL Effectiveness

THRESHOLD OF ACCEPTABLE CHANGE Major damage to vegetation or soil is occurring.

FINDINGS Some riparian impacts due to dispersed use still occur but are steadily being reduced. Through roads and trails and capital investment funding, progresses continued from FY 2001 through FY 2003 to relocate and/or rehabilitate some problem roads, trails and dispersed sites and reduce or eliminate riparian/watershed impacts. Some impacts to soils are inherent to this type of use.

Legal use of the Forest for recreation will normally have some impact on the environment when there is concentrated use. Maintenance of recreation facilities, trails and roads improve many areas of concentrated use and prevent them from impacting larger areas. Watershed improvement funding improves old, non-system roads and helps in relocating poorly located trails and roads. When impacts resulting in decreases to soil and water quality are identified they are scheduled to be corrected with

various funding sources. Illegal vehicle use is increasing and the impacts from this are seen across the Forest. When these areas are identified they are entered onto the Forest WIN inventory and funded from soil and water improvement funds. They are blocked, drained and revegetated.

RECOMMENDATION No changes to plan direction are recommended. The Forest will continue monitoring and inventorying of dispersed recreation sites to determine needs where impacts are expanding into adjacent areas; and continue to reclaim floodplain/riparian ecosystems.

MONITORING ITEM **ECOSYSTEM**

MONITORING QUESTION(S)? To what extent are changes to the ecosystem induced by management practices?

MONITORING LEVEL Implementation

THRESHOLD OF ACCEPTABLE CHANGE Management activities that treat more than 10% of the unsuitable timberland area are not considered subtle and gradual.

FINDINGS Of the 42,000 acres in this MA, 4,000 acres are suitable and 38,000 unsuitable. The amount of activity within this Management Area in Fiscal Years 2001 through 2003 is displayed in the following table.

Fiscal Year	Suitable Timberland In MA 13 (Sold Acres)	Prescribed Burning (Acres)
2001	0	47
2002	0	45
2003	0	2,428

RECOMMENDATION No changes to plan direction are recommended.

MONITORING ITEM **VISUAL QUALITY**

MONITORING QUESTION(S)? Did management practices result in attaining the appropriate VQO?

MONITORING LEVEL Effectiveness

THRESHOLD OF ACCEPTABLE CHANGE Visual quality does not meet the definition of retention or partial retention.

FINDINGS VQOs are met throughout Management Area 13.

RECOMMENDATION No changes to plan direction are recommended.

MONITORING ITEM **TIMBER**

MONITORING Did harvesting occur only on land identified as suitable in the Revised

QUESTION(S)?	Forest Plan?
MONITORING LEVEL	Implementation
THRESHOLD OF ACCEPTABLE CHANGE	Noncompliance with standard.
FINDINGS	Suitability determination is being documented in each project level analysis. Criteria on Plan Appendix page A-5 are compared with actual specific site conditions. See table discussed earlier for this Management Area.
RECOMMENDATION	No changes to plan direction are recommended.
MONITORING ITEM	**TIMBER**
MONITORING QUESTION(S)?	Were there changes in the amount of land identified as suitable?
MONITORING LEVEL	Validation
THRESHOLD OF ACCEPTABLE CHANGE	A change of ± 10% in land suitability as compared with the 4,000 suitable acres of this management area based on project-level analysis.
FINDINGS	See above discussions.
RECOMMENDATION	No changes to plan direction are recommended.
MONITORING ITEM	**TIMBER**
MONITORING QUESTION(S)?	Is regeneration harvesting designed to provide for safety and to provide scenic rehabilitation and enhancement?
MONITORING LEVEL	Implementation
THRESHOLD OF ACCEPTABLE CHANGE	Any decision to regenerate areas must be consistent with achieving the desired future of the management area.
FINDINGS	See above discussions**.**
RECOMMENDATION	No changes to plan direction are recommended.

MANAGEMENT AREA 14

MONITORING ITEM	**WILDLIFE**
MONITORING QUESTION(S)?	Did management activities result in attaining the desired habitat?
MONITORING LEVEL	Effectiveness

THRESHOLD OF ACCEPTABLE CHANGE A change of ± 10% in acres prescribed burned or sold as compared with the 614 estimated prescribed burn acres and 52 estimated harvested acres of this management area from FORPLAN analysis.

FINDINGS The amount of activity within this Management Area in Fiscal Years 2001 through 2003 is displayed in the following table.

Fiscal Year	Suitable Timberland In MA 14 (Sold Acres)	Prescribed Burning (Acres)
2001	0	1,237
2002	0	91
2003	0	0

RECOMMENDATION No changes to plan direction are recommended.

MONITORING ITEM **WILDLIFE**

MONITORING QUESTION(S)? Were open roads in excess of stated density objective closed to public use?

MONITORING LEVEL Implementation

THRESHOLD OF ACCEPTABLE CHANGE No documented evidence that opportunities were looked for. Results indicate no open road mileage can be reduced

FINDINGS No open interior system roads in excess of stated densities were closed in FY 2001 through 2003. No additional road closure opportunities were identified.

RECOMMENDATION No changes to plan direction are recommended.

MONITORING **TIMBER**

MONITORING QUESTION(S)? Did harvesting occur only on land identified as suitable in the Revised Forest Plan?

MONITORING LEVEL Implementation

THRESHOLD OF ACCEPTABLE CHANGE Noncompliance with standard.

FINDINGS Suitability determination is being documented in each project level analysis. Criteria on Plan Appendix page A-5 are compared with actual specific site conditions. The amount of activity within this Management Area in Fiscal Years 2001 through 2003 is displayed in the table above.

RECOMMENDATION	No changes to plan direction are recommended.
MONITORING ITEM	**TIMBER**
MONITORING QUESTION(S)?	Were there changes in the amount of land identified as suitable?
MONITORING LEVEL	Validation
THRESHOLD OF ACCEPTABLE CHANGE	A change of ± 10% in land suitability as compared with the 48,000 suitable acres of this management area based on project-level analysis.
FINDINGS	See second TIMBER finding discussed under Management Area 7.
RECOMMENDATION	No changes to plan direction are recommended.
MONITORING ITEM	**TIMBER**
MONITORING QUESTION(S)?	Is regeneration harvesting designed to diversify food sources and increase other habitat needs?
MONITORING LEVEL	Implementation
THRESHOLD OF ACCEPTABLE CHANGE	Any decision to regenerate areas must be consistent with achieving the desired future of the management area.
FINDINGS	All timber sold was designed to be consistent with the Plan.
RECOMMENDATION	No changes to plan direction are recommended.

MANAGEMENT AREA 15

MONITORING ITEM	**WILDLIFE**
MONITORING QUESTION(S)?	Did management activities result in attaining the desired habitat?
MONITORING LEVEL	Effectiveness
THRESHOLD OF ACCEPTABLE CHANGE	A change of ± 10% in acres prescribed burned or sold as compared with the 2,386 estimated prescribed burn acres and 1,361 estimated harvested acres of this management area from FORPLAN analysis. Percent of grass/herbaceous openings is not met.

FINDINGS The amount of activity within this Management Area in Fiscal Years 2001 through 2003 is displayed in the following table.

Fiscal Year	Suitable Timberland In MA 15 (Sold Acres)	Prescribed Burning (Acres)
2001	628	951
2002	748	1,601
2003	662	2,885

Of the total sold in 2001, 22 acres were uneven-aged harvest cuts (Group Selection).

RECOMMENDATION No changes to plan direction are recommended.

MONITORING ITEM **WILDLIFE**

MONITORING QUESTION(S)? Were open roads in excess of stated density objective closed to public use?

MONITORING LEVEL Implementation

THRESHOLD OF ACCEPTABLE CHANGE No documented evidence that opportunities were looked for. Results indicate no open road mileage can be reduced.

FINDINGS No open interior system roads in excess of stated densities were closed in FY 2001 through 2003. There are no additional opportunities for road closure.

RECOMMENDATION No changes to plan direction are recommended.

MONITORING ITEM **TIMBER**

MONITORING QUESTION(S)? Did harvesting occur only on land identified as suitable in the Revised Forest Plan?

MONITORING LEVEL Implementation

THRESHOLD OF ACCEPTABLE CHANGE Noncompliance with standard.

FINDINGS Suitability determination is being documented in each project level analysis. Criteria on Plan Appendix page A-5 are compared with actual specific site conditions. The suitable timberland managed in Fiscal Years 2001 through 2003 is displayed in the table above.

RECOMMENDATION No changes to plan direction are recommended.

MONITORING ITEM **TIMBER**

MONITORING QUESTION(S)? Were there changes in the amount of land identified as suitable?

MONITORING LEVEL Validation

THRESHOLD OF ACCEPTABLE CHANGE A change of ± 10% in land suitability as compared with the 192,000 suitable acres of this management area based on project-level analysis.

FINDINGS See second TIMBER finding discussed under Management Area 7.

RECOMMENDATION No changes to plan direction are recommended.

MONITORING ITEM **TIMBER**

MONITORING QUESTION(S)? Is regeneration harvesting designed to provide for the wildlife habitat described in the desired future for the management area?

MONITORING LEVEL Implementation

THRESHOLD OF ACCEPTABLE CHANGE Any decision to regenerate areas must be consistent with achieving the desired future of the management area.

FINDINGS See third TIMBER finding discussed under Management Area 7.

RECOMMENDATION No changes to plan direction are recommended.

MANAGEMENT AREA 16

MONITORING ITEM **WILDLIFE**

MONITORING QUESTION(S)? Did management activities result in attaining the desired habitat?

MONITORING LEVEL Effectiveness

THRESHOLD OF ACCEPTABLE CHANGE A change of ± 10% in acres sold as compared with the 217 estimated harvested acres of this management area from FORPLAN analysis. Percent of 1-10 year age class is not met.

FINDINGS The amount of activity within this Management Area in Fiscal Years 2001 through 2003 is displayed in the following table.

Fiscal Year	Suitable Timberland In MA 16 (Sold Acres)	Prescribed Burning (Acres)
2001	10	0
2002	56	0
2003	195	0

RECOMMENDATION	No changes to plan direction are recommended.
MONITORING ITEM	**TIMBER**
MONITORING QUESTION(S)?	Did harvesting occur only on land identified as suitable in the Revised Forest Plan?
MONITORING LEVEL	Implementation
THRESHOLD OF ACCEPTABLE CHANGE	Noncompliance with standard.
FINDINGS	Suitability determination is being documented in each project level analysis. Criteria on Plan Appendix page A-5 are compared with actual specific site conditions. The suitable timberland managed in Fiscal Years 2001 through 2003 is displayed in the table above.
RECOMMENDATION	No changes to plan direction are recommended.
MONITORING ITEM	**TIMBER**
MONITORING QUESTION(S)?	Were there changes in the amount of land identified as suitable?
MONITORING LEVEL	Validation
THRESHOLD OF ACCEPTABLE CHANGE	A change of $\pm$ 10% in land suitability as compared with the 27,000 suitable acres of this management area based on project-level analysis.
FINDINGS	See second TIMBER finding discussed under Management Area 7.
RECOMMENDATION	No changes to plan direction are recommended.
MONITORING ITEM	**TIMBER**
MONITORING QUESTION(S)?	Is regeneration harvesting designed to provide for the wildlife habitat described in the desired future for the management area?
MONITORING LEVEL	Implementation
THRESHOLD OF ACCEPTABLE CHANGE	Any decision to regenerate areas must be consistent with achieving the desired future of the management area.
FINDINGS	See third TIMBER finding discussed under Management Area 7.
RECOMMENDATION	No changes to plan direction are recommended.

MANAGEMENT AREA 17

MONITORING ITEM **TIMBER**

MONITORING QUESTION(S)? Did harvesting occur only on land identified as suitable in the Revised Forest Plan.

MONITORING LEVEL Implementation

THRESHOLD OF ACCEPTABLE CHANGE Noncompliance with standard.

FINDINGS Suitability determination is being documented in each project level analysis. Criteria on Plan Appendix page A-5 are compared with actual specific site conditions. The amount of activity within this Management Area in Fiscal Years 2001 through 2003 is displayed in the following table.

Fiscal Year	Suitable Timberland In MA 17 (Sold Acres)	Prescribed Burning (Acres)
2001	245	0
2002	145	0
2003	145	0

RECOMMENDATION No changes to plan direction are recommended.

MONITORING ITEM **TIMBER**

MONITORING QUESTION(S)? Were there changes in the amount of land identified as suitable?

MONITORING LEVEL Validation

THRESHOLD OF ACCEPTABLE CHANGE A change of ± 10% in land suitability as compared with the 63,000 suitable acres of this management area based on project-level analysis.

FINDINGS See second TIMBER finding discussed under Management Area 7.

RECOMMENDATION No changes to plan direction are recommended.

MONITORING ITEM **TIMBER**

MONITORING QUESTION(S)? Is regeneration harvesting designed to provide for the production of high value timber species and products?

MONITORING LEVEL Implementation

THRESHOLD OF Any decision to regenerate areas must be consistent with achieving the

ACCEPTABLE CHANGE desired future of the management area.

FINDINGS See third TIMBER finding discussed under Management Area 7.

RECOMMENDATION No changes to plan direction are recommended.

MANAGEMENT AREA 18

MONITORING ITEM **FISHERIES**

MONITORING QUESTION(S)? Are activities working towards providing the required amounts of LWD per stream mile?

MONITORING LEVEL Implementation

THRESHOLD OF ACCEPTABLE CHANGE Noncompliance with standard.

FINDINGS In 2001 through 2003, 188 miles of streams were surveyed using a modified Basinwide Visual Estimation Technique (BVET [Dolloff et. al. 1993]) to estimate woody debris loading, percentage of pool and riffle area, and the width of the riparian area of streams. The distribution of woody debris was also mapped. Approximately 30% of the streams surveyed did not meet the desired future conditions of 78 to 186 pieces of large woody debris per kilometer. Approximately 69% of the streams surveyed did not meet the desired future condition of pool habitat between 35% and 65% (Roghair et. al. 2002, Roghair et. al. 2003).

Additional survey items inventoried in 2001-2003 include measuring glide, run, cascade, and braid habitats, embeddedness, Rosgen channel type, residual pool depth, substrate composition, and gradient. These items were added to better characterize the streams and the stability of their channels.

Limiting factors for meeting the physical DFC's were predominately historic land use practices of the last 150 years. Historically, up until the last 20 to 30 years, riparian areas have been logged to the stream banks. It takes over 100 years for riparian trees to grow to large size, die and fall into the riparian area as LWD. Riparian areas are managed to provide future LWD recruitment. Additionally, projects continue to be accomplished that add LWD into those streams currently not meeting DFC.

RECOMMENDATION No changes to plan direction are recommended. The Forest will be analyzing the current physical habitat of the streams as they relate to historic timber management activities and other land use practices. The agency will continue to inventory and monitor existing physical stream habitat conditions.

MONITORING ITEM **FISHERIES**

MONITORING QUESTION(S)? Will these amounts of LWD provide necessary habitat for all life stages of native aquatic species and will it be self-sustaining?

MONITORING LEVEL Effectiveness

THRESHOLD OF ACCEPTABLE CHANGE	Habitat rating by Virginia Dept. of Game & Inland Fisheries or West VA DNR stream classification system is lowered.
FINDINGS	In 2001-2003, 188 miles of streams were surveyed for large woody debris (LWD). Of the greater than 850 miles of streams surveyed on the Forest, habitat ratings were lowered on several streams because of flood impacts. On streams that met the DFC for LWD, there was a healthy aquatic macroinvertebrate population (unless chemically impacted from acid deposition) and a healthy native fish fauna. The majority of the LWD is in smaller size classes, which are not as effective in creating habitat units used by aquatic fauna. The DFC for LWD appears to be an accurate representation of the amount of wood needed to provide necessary habitat for all life stages of native aquatic species, however, it would be desirable to have more of the LWD in the larger size classes.
RECOMMENDATION	No changes to plan direction are recommended. The Forest will continue to look at the relationship between LWD, aquatic macroinvertebrate communities, fish fauna, and historic land use practices on those streams that are not limited chemically from acid deposition
MONITORING ITEM	**FISHERIES**
MONITORING QUESTION(S)?	Were viable populations maintained in suitable habitat?
MONITORING LEVEL	Effectiveness
THRESHOLD OF ACCEPTABLE CHANGE	Negative population trends in three consecutive surveys.
FINDINGS	Aquatic management indicator species were chosen to represent conditions of specific habitat that supports an array of other species. Brook trout were chosen to represent cold-water streams, the sunfish family was chosen to represent warm water habitat, and the James Spinymussel represents an aquatic TES species. See Appendix G for discussion of population trends for these three aquatic species.
RECOMMENDATION	No changes to plan direction are recommended.
MONITORING ITEM	**SOIL**
MONITORING QUESTION(S)?	Was action taken to limit recreation before bare soil is exposed on more than 5% of the area?
MONITORING LEVEL	Implementation
THRESHOLD OF	Noncompliance with standard.

ACCEPTABLE CHANGE

FINDINGS According to the Forest watershed improvement needs inventory, managed recreation use was not an important impact to soil and water resources across the Forest from FY 2001 through 2003. In the small-localized areas where recreation use does cause erosion and/or sediment delivery to stream channels, the Forest targets these for improvement work. The Forest does not have any areas where bare soil caused by recreation use is exceeding 5% of the area. Shoreline erosion around Lake Moomaw is recreation related and is one of the larger areas of bare soil caused by recreation. Wave action is causing shoreline erosion near the water's edge. Some riprap (large rock) was used to protect some of this area. A section of this shoreline was protected with riprap stone near Fortney Branch boat landing on the James River District in FY 2001. Unmanaged motorized recreation use is an impact across the Forest and is inventoried and treated as funding allows.

RECOMMENDATION No changes to Forest Plan direction are recommended. The Forest will continue to inventory soil resource improvement needs and implement improvement work where recreation use is increasing soil erodibility. All non-road/trail bare soil on slopes greater than 5% will be vegetated to prevent soil movement.

MONITORING ITEM **WATER**

MONITORING QUESTION(S)? Were filter strips, shade strips, and vehicle exclusion zones maintained at required width? Were areas of disturbed soil revegetated by the end of the first growing season? In riparian areas, were revegetation measures implemented within 14 days of disturbance? On roads and skid trails, were appropriate drainage structures installed and maintained? Was the appropriate type of stream crossing used? Were approaches to ford crossings graveled at least 50 feet on each site of stream?

MONITORING LEVEL Implementation

THRESHOLD OF ACCEPTABLE CHANGE Major departure from intent of BMPs as noted on Field Evaluation Form.

FINDINGS From FY2001 to FY2003 a variety of soil-disturbing activities were monitored for implementation of Best Management Practices. Most were timber sales, including salvage sales, but prescribed burns, wild fires, wildlife clearing development, road construction and maintenance, waterhole rehabilitation, and diversionary dam construction also were monitored.

Of 608 BMP monitoring elements, 98 percent showed that implementation met or exceeded BMP requirements. Two percent showed only minor departures from the intent of the BMP. The Virginia Department of Forestry conducted water quality monitoring in association with timber harvests from 1989 to 1996 (VA. Dept. of Forestry, 1998). At sites in the mountains, Piedmont, and coastal plain,

water temperatures were taken at 10-minute intervals, and water samples were collected automatically before, during, and after storm events, both upstream and downstream from logging. Aquatic macroinvertebrates were also sampled periodically. This monitoring showed that, when forestry BMP's are properly implemented, timber harvests can be accomplished without a large or persistent increase in sediment, an increase in stream water temperatures, or a shift in macroinvertebrate species composition. Since the Forests' monitoring indicates that forestry BMP's were properly implemented, it can be concluded that these practices were effective in protecting water quality.

REFERENCE: Virginia Department of Forestry. 1998. Conclusions suggested by water quality monitoring near private timber harvests: 1989-1996, an executive summary.
Internet Source: http://state.vipnet.org/dof/wq/wqm89-96.htm

RECOMMENDATION No changes to plan direction are recommended. The Forest will continue BMP monitoring.

MONITORING ITEM **WATER**

MONITORING QUESTION(S)? Are BMPs effective in protecting the most sensitive of the State-designated beneficial uses of water, namely, that of native brook trout streams?

MONITORING LEVEL Effectiveness

THRESHOLD OF ACCEPTABLE CHANGE Lowering of biological condition by one category as determined by EPA Rapid Bioassessment Protocol II.

FINDINGS Aquatic macroinvertebrate communities integrate the physical, chemical, and biological components of the riparian ecosystem and have been successfully used as bioindicators to monitor change and impacts (EPA 1989). An analysis of over 536 streams on the GWJNF has established the current range of conditions for aquatic macroinvertebrate communities found on the GWJNF. A Macroinvertebrate Aggregated Index for Streams (MAIS) (range of scores 0 to 18) incorporates nine ecological aspects (metrics) of the aquatic macroinvertebrate community to evaluate the current condition of a stream relative to others within the Section (Smith and Voshell 1997). A Rapid Bioassessment report provides raw data on the taxa collected in addition to the metric scores and the overall MAIS score. An adjective of "very good" (MAIS = 17-18), "good" (MAIS = 13-16), poor/fair (MAIS - 7-12) and "very poor" (MAIS = 0-6) are added to the report to make it user friendly to non-technical managers and decision makers. The GWJNF uses the MAIS score as "coarse filter" screening tool on all projects to establish current "stream health" and to establish a baseline to evaluate effectiveness of standards, guidelines and mitigation measures in preventing changes and impacts to the aquatic community. When the MAIS score is low or has changed from previous monitoring, biologists examine the individual metric scores and/or raw data to identify limiting factors. The individual metrics often point to a limiting factor or trigger a more rigorous and quantitative monitoring effort.

Sample sites were selected downstream of management activity areas to monitor the impacts on stream health of projects including but not limited to timber sales and prescribed burns. Other samples were collected to create a baseline of stream conditions within the forest. Only samples collected from March through the first week in June were compared to minimize seasonal variability in structure of

macroinvertebrate communities. Across the Forest, 728 samples were collected, analyzed and assigned an overall MAIS score (0-18). Of these samples, 84% were in the "good" and "very good" categories.

A paired t-test was used to compare the MAIS scores of 18 streams before and after timber harvests that occurred at various locations across the Forest. There was no significant difference between the pre and post timber harvest MAIS scores; both the pre and post mean scores were in the "Good" category (Table 1).

Table 1. Paired samples t-test on pre and post MAIS scores from 18 different timber sales.

Mean MAIS Score Pre-Harvest	16
Mean MAIS Score Post-Harvest	15
95% Confidence Interval	-0.365 to 2.365
P value	0.140

A paired t-test was used to compare the MAIS scores of 7 streams before and after prescribed burns that occurred at various locations across the Forest. There was no significant difference between the pre and post prescribed burn MAIS scores; both the pre and post mean scores were in the "Good" category (Table 2).

Table 2. Paired samples t-test on pre and post MAIS scores from 7 different prescribed burns.

Mean MAIS Score Pre-Burn	16
Mean MAIS Score Post-Burnt	16
95% Confidence Interval	1.098 to 1.669
P value	0.631

Water quality has been systematically monitored on Forest streams since 1987. Approximately 200 streams were monitored for water quality each year in 2001, 2002 and 2003. As expected, the general water quality of any given stream is strongly tied to the underlying geology coupled with prevailing air quality. The collected data has been used to determine trends and changes in stream water composition, and to develop a model for projecting the future status of native trout streams. A 1998 report (Bulger et al. 1998) found that of the study streams in non-limestone geology, 50 percent are "non-acidic." An estimated 20 percent are extremely sensitive to further acidification. Another 24 percent experience regular episodic acidification at levels harmful to brook trout and other aquatic species. The remaining 6 percent of streams are "chronically acidic" and cannot host populations of brook trout or any other fish species. Similar findings were reported by the Southern Appalachian Mountain Initiative in their 2002 publication on acid deposition.

Acidification impacts have reduced aquatic biodiversity and ecosystem capabilities through chronic or

episodic lowering of stream pH. Increased aluminum concentrations, often associated with low pH, can also be toxic to aquatic life. These impacts have severe implications for 1) meeting the desired future conditions of aquatic ecosystems and 2) satisfying the public's expectations and demands for healthy, functioning, aquatic ecosystems.

RECOMMENDATION No changes to plan direction are recommended. The Forest will continue to look at the effects of short-term management practices on the immediate response of the MAIS score.

References

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Smith, E.P, and J. Reese Voshell, Jr. 1997. Studies of benthic macroinvertebrates and fish in streams within EPA Region 3 for the development of biological indicators of ecological condition. Part 1 Benthic Macroinvertebrates. Final Report January 24, 1997, Virginia Polytechnic Institute and State University, Blacksburg VA 24061; Cooperative Agreement CF821462010, 23 p.

MANAGEMENT AREA 20

MONITORING ITEM **ADMINISTRATIVE SITES**

MONITORING QUESTION(S)? Do administrative sites meet required regulations?

MONITORING LEVEL Implementation

THRESHOLD OF ACCEPTABLE CHANGE No code violations. Violations are corrected as quickly as possible.

FINDINGS Code violations are corrected when they are found. Maintenance to Work Center buildings continues as necessary. A new office for the Dry River Ranger District has been completed and occupied. A new Work Center for this site has been funded and is in design. The existing Dry River Office leases will be terminated (the Ranger's Office as well as the Mobile Office Space), and one of the two existing work center sites will likely be sold next year (FY04). The

remaining old Work Center site will be sold upon completion of the new Dry River Work Center.

The New Castle office has received significant work in FY03 including new siding, and contracting for new site waterlines. A contract is also in place to connect this site to public water.

Six new buildings have been constructed/installed at Augusta Springs (Deerfield District) to house the Augusta Hotshots. These include two housing facilities, a Work Center and training building, a fuel storage building, and two Mobile Offices.

A Mobile Office unit has also been installed at the Glenwood/Pedlar Ranger District. Funds are in reserve for construction of a New Lee District Ranger's Office as well as to provide for major renovation of the Mount Roger's National Recreation Area office. Needs for facility maintenance at administrative sites are considered each year and work priorities are established from this list.

RECOMMENDATION No changes to plan direction are recommended.

MONITORING ITEM **UTILITY CORRIDORS**

MONITORING QUESTION(S)? Is low-growing vegetation being maintained in electric rights-of-way where wildlife and aesthetic objectives have been established?

MONITORING LEVEL Implementation

THRESHOLD OF ACCEPTABLE CHANGE Noncompliance with standard.

FINDINGS Vegetation within utility corridors is being maintained in accordance with Forest Plan direction and approved special use permits.

RECOMMENDATION No changes to plan direction are recommended.

MONITORING ITEM **COMMUNICATION SITES**

MONITORING QUESTION(S)? Were new communication sites developed? Are existing communication sites being used to the maximum?

MONITORING LEVEL Implementation

THRESHOLD OF ACCEPTABLE CHANGE Existing sites should approach 90% occupancy.

FINDINGS No new communication sites were designated in FY 2002. Through the Forest Plan rvision process, One new communication site was designated in FY2003 at Quebec Knob on the Mount Rogers National Recreation Area and one site was designated on the Clinch Ranger District at Mayking Mountain. The Quebec Knob site will likely be utilized by the Forest Service and the current site at Brushy Mountain may be decommissioned.

RECOMMENDATION	No changes to plan direction are recommended.

MANAGEMENT AREA 21

MONITORING ITEM	**ECOSYSTEM**
MONITORING QUESTION(S)?	To what extent are changes to the ecosystem induced by management practices?
MONITORING LEVEL	Implementation
THRESHOLD OF ACCEPTABLE CHANGE	Management activities which treat more than 10% of the area are not considered to mimic natural ecological processes.
FINDINGS	Management Area 21 consists of 59,000 acres. In April 2003, about 1,500 acres was prescribed burned in the Little Schloss area. This is below the 10% threshold. Effect of the prescribed burn are within the natural range of variability for this ecosystem.
RECOMMENDATION	No changes to plan direction are recommended.
MONITORING ITEM	**BIOLOGICAL VALUES**
MONITORING QUESTION(S)?	Were practices used that were necessary to recover threatened or endangered species habitats or populations? Were practices used that were necessary to maintain sensitive species habitats or populations?
MONITORING LEVEL	Implementation
THRESHOLD OF ACCEPTABLE CHANGE	Noncompliance with standard.
FINDINGS	No practices were carried out in Management Area 21 from 2001 through 2001 that were specifically directed at TES species management.
RECOMMENDATION	No changes to plan direction are recommended.
MONITORING ITEM	**GEOLOGIC VALUES**
MONITORING QUESTION(S)?	Was Big Schloss protected from disturbance?
MONITORING LEVEL	Implementation
THRESHOLD OF ACCEPTABLE CHANGE	No evidence of damage to sites.
FINDINGS	No reports of damage to Big Schloss (the rock outcrop).

RECOMMENDATION	No changes to plan direction are recommended.
MONITORING ITEM	**MINERALS**
MONITORING QUESTION(S)?	Within the Laurel Fork Special Management Area, did leases issued contain special stipulations?
MONITORING LEVEL	Implementation
THRESHOLD OF ACCEPTABLE CHANGE	Noncompliance with standard.
FINDINGS	On January 31, 1997, Regional Forester Robert Joslin decided to withdraw consent to the Bureau of Land Management to offer leases for oil and gas in the Laurel Fork Special Management Area and to make the Laurel Fork area administratively unavailable for oil and gas leasing. Connected with these two decisions, the George Washington Forest Plan was amended. Since this occurred, the question is no longer necessary since leasing will not occur.
RECOMMENDATION	No changes to plan direction are recommended at this time. Wait until Plan is revised and then remove this monitoring question.
MONITORING ITEM	**RECREATION**
MONITORING QUESTION(S)?	Are opportunities for primitive recreation and solitude being provided?
MONITORING LEVEL	Implementation
THRESHOLD OF ACCEPTABLE CHANGE	Failure of adopted SPNM ROS areas to meet the criteria for SPNM ROS recreation opportunities.
FINDINGS	Since there were no activities or projects within these areas from FY 2001 to FY 2003 that would have changed the existing opportunities being provided, these SPNM opportunities are being met.
RECOMMENDATION	No changes to plan direction are recommended.

MANAGEMENT AREA 22

MONITORING ITEM	**ECOSYSTEM**
MONITORING QUESTION(S)?	For each unique area, has the theme(s) been identified?
MONITORING LEVEL	Implementation

THRESHOLD OF ACCEPTABLE CHANGE No implementation schedule has been developed.

FINDINGS Nothing has been done since the draft implementation schedule was completed in FY 1994 on areas along Shenandoah River.

RECOMMENDATION Review, create, or update the Implementation Schedules and establish an Action Plan.

MONITORING ITEMS THAT ARE COMMON TO ALL MANAGEMENT AREAS

MONITORING ITEM **ARCHEOLOGICAL SITES**

MONITORING QUESTION(S)? Were potentially eligible sites protected from disturbance?

MONITORING LEVEL Implementation

THRESHOLD OF ACCEPTABLE CHANGE No evidence of damage to sites.

FINDINGS One archaeological resource was impacted by vandalism between FY 2001 and FY 2003. The FS archaeologists and the Law Enforcement Officers monitored the site. Surveillance cameras were placed on the site. No further damage has occurred. No other sites were disturbed. Inventory and report writing continued for Fort Johnson.

Inventory and site testing are on going at the iron complex associated with Longdale Furnace and at the prehistoric Keyser Farm site.

RECOMMENDATION No changes to plan direction are recommended.

MONITORING ITEM **BIOLOGICAL VALUES**

MONITORING QUESTION(S)? Is each old growth forest type represented in an old growth condition on the Forest? How much and where is the old growth on the Forest?

MONITORING LEVEL Validation

THRESHOLD OF ACCEPTABLE CHANGE Depends on inventory finding and site-specific analysis, but no total downward trend in acres

FINDINGS Ten old growth forest types occur on the George Washington National Forest. Eight of these ten types currently have acreage in an old growth condition. Acreage in an old growth condition is increasing forestwide in all forest types. No management activities have been implemented in areas identified as old growth other than Old Growth Forest Type (OGFT) 21 - Dry/Mesic Oak Forest. While a few acres in this type have been

	harvested the net acres forestwide are increasing as forests age and develop old growth characteristics. See discussion of old growth in Appendix G to this report.
RECOMMENDATION	No changes to plan direction are recommended.
MONITORING ITEM	**BIOLOGICAL VALUES**
MONITORING QUESTION(S)?	Are associated species of the yellow pine community, dependent on fire or xeric conditions, being maintained, and reproducing?
MONITORING LEVEL	Effectiveness
THRESHOLD OF ACCEPTABLE CHANGE	Loss of associated species or total fire exclusion.
FINDINGS	The Forest did not quantify this loss since these species are typically on unsuitable timberland and not systematically inventoried. Prescribed burning is stable to increasing across the National Forest. See discussion of yellow pine community and trend in prescribed burn acreages in Appendix G.
RECOMMENDATION	No changes to plan direction are recommended.
MONITORING ITEM	**BIOLOGICAL VALUES**
MONITORING QUESTION(S)?	What are the bird (worm-eating warbler, ovenbird, brown-headed cowbird, and pileated woodpecker) population trends on the Forest?
MONITORING LEVEL	Validation
THRESHOLD OF ACCEPTABLE CHANGE	Natural population fluctuations are expected. Long-term (5-10 yr) downward trend will result in implementation of Level 2 surveys.
FINDINGS	See discussion of this species in Appendix G to this report.
RECOMMENDATION	No changes to plan direction are recommended.
MONITORING ITEM	**BIOLOGICAL VALUES**
MONITORING QUESTION(S)?	What are the bird (common flicker) population trends on the Forest?
MONITORING LEVEL	Validation
THRESHOLD OF ACCEPTABLE CHANGE	Natural population fluctuations are expected. Long-term (5-10 yr) downward trend will result in implementation of Level 2 surveys.
FINDINGS	See discussion of this species in Appendix G to this report.

RECOMMENDATION No changes to plan direction are recommended.

MONITORING ITEM **BIOLOGICAL VALUES**

MONITORING QUESTION(S)? Have all caves been inventoried on the Forest? What is the classification of each cave inventoried? Have management plans been developed for each cave?

MONITORING LEVEL Implementation

THRESHOLD OF ACCEPTABLE CHANGE Noncompliance with standard.

FINDINGS Inventory of cave resources is continuing. Assistance is being obtained fro the Cave and Karst Program of the Virginia Department of Conservation and Recreation – Division of Natural Heritage. Starr Chapel Cave was recognized as a significant cave under the Federal Cave Protection Act in 2003.

RECOMMENDATION No changes to plan direction are recommended.

MONITORING ITEM **BIOLOGICAL VALUES**

MONITORING QUESTION(S)? What are the bat's population trends on the Forest?

MONITORING LEVEL Validation

THRESHOLD OF ACCEPTABLE CHANGE Negative population trends in two consecutive surveys.

FINDINGS The rarest bats on the National Forests are the Indiana bat (Myotis sodalis), the gray bat (M. grisescens) and the Virginia big-eared bat (Plecotus townsendii). All three of these species are federally endangered and all three make some use of the National Forests. Other bats that use the Forests, such as the eastern Pipistrelle (Pipistrellus subflavus), the big brown bat (Eptesicus fuscus) and the little brown bat (Myotis lucifugus) are much more numerous and widespread than the former three species and therefore not as much of a management concern.

Indiana bat: This species occurs in caves on both the GW (Warm Springs R.D.) and on the JNF (New Castle, New River Valley and Clinch Ranger Districts). All caves where they occur are being monitored. All caves on National Forest System land are now gated to prevent unauthorized human entry. While there are seasonal fluctuations, bat numbers at all locations are either stable or increasing. In cooperation with the VDGIF, the U.S. Fish and Wildlife Service (USFWS), Ferrum College and the Virginia Division of Natural Heritage (VDNH), the Forests are conducting additional radio tracking, light tagging, and mist netting surveys as funding permits. This work will help determine use of upland forest and riparian habitats to assess the extent that we have summer roosting Indiana bats. In May 1997 the Forest formally consulted with the U.S. Fish and Wildlife Service on effects to the Indiana bat that may result from implementation of the Forest Plans. A Biological Opinion received in September 1997

and the GWNF Forest Plans were amended in March 1998. The Jefferson Forest Plan was recently revised in January 2004 and also considered the Indiana bat.

Gray bat: The only known locations of this species in Virginia are in the extreme southwest; in Lee and Scott counties. Sightings are incidental with the exception of the well-known maternity colony in a storm drain in the city of Bristol, VA/TN. The Forest's interest in this species is centered on a cave on a private inholding on the Mt. Rogers NRA. This parcel was made available for sale and local cavers and bat experts indicated that the cave could contain gray bats, which would make it a high priority for acquisition. Subsequently, the cave was surveyed, but the results are still inconclusive. The cave will be examined again to make a final determination on whether or not it harbors gray bats.

Virginia big-eared bat: There are no known hibernacula or roosts on the National Forests, but from light tracking work done by VDGIF it is known that this species forages on the JNF in the Burkes Garden/Beartown Wilderness area. This species lives in caves year-round and forages on moths and beetles across a variety of habitats including fields and cropland as well as mature forests.

See discussion of cave dwelling bats in Appendix G of this report.

RECOMMENDATION	No changes to plan direction are recommended.
MONITORING ITEM	**FIRE**
MONITORING QUESTION(S)?	Is funding being allocated as indicated by the fire analysis to achieve the Desired level of protection?
MONITORING LEVEL	Implementation
THRESHOLD OF ACCEPTABLE CHANGE	Variance greater than 10% from Fire Protection Capability Index (FPCI) of 100%.
FINDINGS	Fire budget is being allocated in accordance with NFMAS (National Fire Management Analysis System).
RECOMMENDATION	No changes to plan direction are recommended as no trends established. Continue to implement Most Efficient Level (MEL) budget as identified in the January 2001 NFMAS re-analysis. This strategy will provide a more efficient and more effective fire organization.
MONITORING ITEM	**FIRE**
MONITORING QUESTION(S)?	Was preattack planning effective in preventing loss of life or homes on private property?
MONITORING LEVEL	Effectiveness
THRESHOLD OF ACCEPTABLE CHANGE	Any loss of life or house from fire originating on the Forest.

FINDINGS	There were no losses of life or homes on private land from wildfires originating on the Forest.
RECOMMENDATION	No changes to plan direction are recommended.
MONITORING ITEM	**FIRE**
MONITORING QUESTION(S)?	What are the effects of prescribed fire on vegetation, small mammals, herptofauna, and birds on the Forest?
MONITORING LEVEL	Effectiveness
THRESHOLD OF ACCEPTABLE CHANGE	Natural population fluctuations are expected along with changes in species composition and vegetative structure. Threshold will be if approved prescribed burn objectives as stated in the burn plan are not met.
FINDINGS	Some level of monitoring is part of each prescribed fire project. On-going research and monitoring continues plus information sharing for effects analysis. Monitoring procedures continue to be refined and are being implemented.
RECOMMENDATION	No changes to plan direction are recommended.
MONITORING ITEM	**INSECT & DISEASE**
MONITORING QUESTION(S)?	Are silvicultural treatments effectively reducing the susceptibility or vulnerability of stands to damaging pests? Are intervention treatments effectively reducing the susceptibility or vulnerability of stands to damaging pests?
MONITORING LEVEL	Effectiveness
THRESHOLD OF ACCEPTABLE CHANGE	For silvicultural treatments, gypsy moth impacts prohibit adequate oak stocking on more than 5% of projects. For intervention treatment, post treatment population within $\pm$ 10% of pre-treatment population.
FINDINGS	Previously conducted silvicultural treatment are reducing short-term vulnerability, however, the gypsy moth population and subsequent defoliation has increased from previous years. Based on previous monitoring of treated stands the vulnerability of the stands to defoliation and mortality should be reduced. See the maps and trends in gypsy moth defoliation in Appendix F of this report. In 2001, across both Forests, 4,338 acres were sprayed. In 2002, 4,889 acres were sprayed. No spraying occurred in 2003.

RECOMMENDATION No changes to plan direction are recommended.

MONITORING ITEM **LANDS**

MONITORING QUESTION(S)? Are available private lands being acquired that have been identified on the land ownership adjustment map?

MONITORING LEVEL Implementation

THRESHOLD OF ACCEPTABLE CHANGE Tract exchanged or acquired not identified on Land Ownership Adjustment Map.

FINDINGS

In FY 2001 we acquired two tracts totaling 197.82 acres, one that was identified for acquisition and one that was not. The second tract was acquired because there was a need to acquire access and the landowner was unwilling to sell only a right-of-way, but did offer to sell the tract in fee. There were no land acquisitions in FY 2002. In FY 2003 a 22.33 acre parcel was donated to the United States. It was not identified for acquisition on the Land Ownership Adjustment Map, but acquisition of the tract consolidated the land pattern filling in a gap between a large block of National Forest and an isolated tract of land. The isolated tract was identified for conveyance at the time, but now that it is no longer isolated, the Land Ownership Adjustment Map will be amended so that it no longer is identified for conveyance.

We exchanged 14.96 acres of federal land (of which 5.91 acres is encumbered by the Interstate 64 Highway ROW) for 11.75 acres of private land in FY 2001. No exchanges were completed in FY 2002 or 2003. The tract acquired by the United States was identified for acquisition on the Land Ownership Adjustment Map, however the federal tract was not identified for conveyance. Even though the tract was not identified for conveyance it was desirable to exchange in order to eliminate access across National Forest to private land. In addition to eliminating the need for access, 5.91 acres encumbered by the I-64 corridor were conveyed out of federal ownership.

RECOMMENDATION No changes to plan direction are recommended.

MONITORING ITEM **LANDS**

MONITORING QUESTION(S)? Were exchanges or purchases effective in consolidating large blocks of National Forest land or disposing of isolated tracts of existing National Forest land?

MONITORING LEVEL Effectiveness

THRESHOLD OF ACCEPTABLE CHANGE Tract acquired did not consolidate ownership or tract disposed was not isolated.

FINDINGS	See previous discussion. Acquisitions were effective in consolidating federal ownership and providing needed access. Land exchanged out of federal ownership eliminated the need to provide access to private land and removed land encumbered by an interstate right-of-way out of federal ownership.
RECOMMENDATION	No changes to plan direction are recommended.
MONITORING ITEM	**LANDS**
MONITORING QUESTION(S)?	Is the Forest establishing and maintaining boundary lines at a rate to meet objectives in Appendix E of the Plan?
MONITORING LEVEL	Implementation
THRESHOLD OF ACCEPTABLE CHANGE	Variance greater than 25% from objective.
FINDINGS	Because of the Forest merger, each Forest does not separate out landline information. See discussion of landlines in Chapter 1 of this report.
RECOMMENDATION	No changes to plan direction are recommended.
MONITORING ITEM	**PLAN CONSISTENCY**
MONITORING QUESTION(S)?	Are projects consistent with the Forest Plan? Are the projects being implemented in accordance with the NEPA document?
MONITORING LEVEL	Implementation
THRESHOLD OF ACCEPTABLE CHANGE	Noncompliance with NEPA documents or Revised Forest Plan.
FINDINGS	See discussion of Plan Amendments on page 2 of this report.
RECOMMENDATION	No changes to plan direction are recommended. No trend in application of standards has occurred.
MONITORING ITEM	**RECREATION**
MONITORING QUESTION(S)?	Are the estimated outputs projected in the Plan being achieved? Are trails being maintained to the standard necessary to adequately support users?
MONITORING LEVEL	Implementation
THRESHOLD OF ACCEPTABLE CHANGE	Variance greater than 25% between projected and actual outputs. Any increase in the backlog of trails not maintained to standard.

FINDINGS	Comparing outputs displayed in Plan and associated EIS and the trends in "Management Attainment Reports" (See appendix B) in this and past monitoring reports leads to the conclusion that outputs anticipated are not being achieved. Trail maintenance objectives in the Forest Plan remain high based upon funding received. Trail maintenance backlog has remained essentially static from FY 2001 through FY 2003.
RECOMMENDATION	No changes to Plan recommended since outside Forest's control.
MONITORING ITEM	**RECREATION**
MONITORING QUESTION(S)?	Are trails meeting the needs of its users?
MONITORING LEVEL	Effectiveness
THRESHOLD OF ACCEPTABLE CHANGE	Survey reveals poor trail conditions, hazards, or user conflicts.
FINDINGS	No specific surveys were done from FY 2001 through end of FY 2003. Districts have identified problems on some trails. Trail maintenance backlog is essentially stable. Most trails are multiple use, but reported user conflicts remain few.
RECOMMENDATION	No changes to plan direction are recommended.
MONITORING ITEM	**RECREATION**
MONITORING QUESTION(S)?	Are ROS classifications being met in the Management Area? How well do the standards help in meeting the ROS objectives?
MONITORING LEVEL	Effectiveness
THRESHOLD OF ACCEPTABLE CHANGE	Any human caused deviations from adopted ROS.
FINDINGS	Not specifically monitored from FY 2001 through FY 2003. No known human caused deviations from ROS classifications. Standards appear to be effective.
RECOMMENDATION	No changes to plan direction are recommended.
MONITORING ITEM	**SOIL**
MONITORING QUESTION(S)?	Did activities leave in place at least 85% of the soil surface layer, including organic or litter layer, topsoil, and root mat?
MONITORING LEVEL	Implementation

THRESHOLD OF ACCEPTABLE CHANGE Noncompliance with standard.

FINDINGS Compliance with this standard is mostly associated with topsoil removal by dozer blading. Projects, which include road building and soil disturbance, and are not considered maintenance, are assessed for their impacts on long-term soil productivity in an environmental analysis. This is done by estimating the amount of topsoil removal associated with a project and how it cumulatively affects an area. If this estimate exceeds 15% of the project area, then the project would be considered to have a significant effect upon long-term soil productivity. We have not analyzed a project in FY01-03 that would have exceeded this threshold level.

RECOMMENDATION No changes to Plan direction are recommended.

MONITORING ITEM **SOIL**

MONITORING QUESTION(S)? Did exposing up to 15% of the soil cause erosion to exceed the forested T-factor?

MONITORING LEVEL Effectiveness

THRESHOLD OF ACCEPTABLE CHANGE Soil erosion exceeds forested T-factor.

FINDINGS We have not done an environmental analysis where soil erosion was expected to exceed the forested T-factor for the site. Each environmental assessment estimates soil movement and forested T-factors for timber harvest areas, log landings, and skid trails. This factor is used as a way to estimate soil movement on slopes during and after resource management on forested lands. The T-factor, which was developed by the Forest Service, is an adaptation of the Universal Soil Loss Equation used on agricultural lands. The T-factor itself is a threshold amount of soil which can be lost and not reduce long term productivity. We do not typically monitor this factor on projects because it is labor intensive and very variable across landscapes and it has not appeared as a problem during the environmental analysis for the project. For T-factor analysis completed from FY 2001 through end of FY 2003, the predicted maximum one-year soil loss averaged only 11% of the allowed maximum one-year soil loss, and ranged from 3% to 27%.

RECOMMENDATION No changes to Plan direction are recommended.

MONITORING ITEM **THREATENED, ENDANGERED, & SENSITIVE SPECIES**

MONITORING QUESTION(S)? Were requirements outlined in federal species recovery plans implemented?

MONITORING LEVEL	Implementation
THRESHOLD OF ACCEPTABLE CHANGE	Evidence that recovery plans are not being implemented.
FINDINGS	Requirements outlined in federal species recovery plans are being implemented. See also Appendix G of this report.
RECOMMENDATION	No changes to the Plan direction are recommended.
MONITORING ITEM	**THREATENED, ENDANGERED, & SENSITIVE SPECIES**
MONITORING QUESTION(S)?	Is habitat for all existing threatened and endangered species being maintained or improved with no unwanted habitat alterations/degradations happening?
MONITORING LEVEL	Effectiveness
THRESHOLD OF ACCEPTABLE CHANGE	Natural population fluctuations are acceptable. Negative trends resulting from management activities will require immediate action.
FINDINGS	1) Deer browsing on Helonias bullata, swamp pink, may be having a negative effect on plant growth and reproduction. Beaver activity has affected a large swamp pink population on the Forest by raising the water level and inundating plants. Following discussions with the U.S. Fish and Wildlife Service and other experts, no action was taken to control the beavers. Water levels rose and some swamp pink plants were lost. A water control structure was installed in 2002. At this time (Spring 2004) it's unknown if the swamp pink population at this location will recover to pre-inundation numbers. 2) An Echinacea laevigata, smooth coneflower, population has been mowed by Virginia Department of Transportation (VDOT) maintenance activities. This population grows in the road right-of-way. Yet, VDOT has also cut some trees to increase light to the existing coneflowers. An additional population was discovered on National Forest System land in 1999. This population adjoins land that is managed by the Virginia Department of Conservation and Recreation as a natural area and is well protected. Monitoring is continuing.
RECOMMENDATION	No changes to plan direction are recommended. The Forest is looking into proposing projects to improve smooth coneflower habitat adjacent to the existing population, and coordinating with U.S. Fish and Wildlife Service on studies of effects of deer browsing on swamp pink.
MONITORING QUESTION(S)?	What are the wood rat's population trends on the Forest? (V) Are the rock vole and water shrew present on the Forest" If so, where? (I)

MONITORING LEVEL Validation and Implementation

THRESHOLD OF ACCEPTABLE CHANGE For the wood rat, negative population trends in two consecutive surveys. For the rock vole and water shrew, evidence that species exists and continues to exist at a specific location.

FINDINGS Alleghany wood rat: To date all 10 Ranger Districts have conducted presence/absence trapping for wood rats in many areas of apparently suitable habitat. All areas of potentially suitable habitat have not yet been sampled, but this work is being conducted as time and funding allows. During 1997 and 1998 25 new sites were trapped, with wood rats being captured (and released) at nine (36%) of these locations. To date 64 active sites have been located from 111 potentially suitable sites and 11 sites currently identified remain to be checked. Therefore, based on the 100 potential sites trapped, 64% were active with wood rats present. In general, wood rats are being found in new locations every year as we identify potentially suitable habitat and then trap to determine occurrence status. There are now two bi-monthly and six permanent annual monitoring locations (located on the Lee, James River, Pedlar, and Warm Springs Districts of the GW, and Blacksburg and Glenwood Districts of the Jefferson) where we trap in cooperation with Dr. Mike Mengak of Ferrum College and VDGIF to determine population trends. In order to have data more comparable to that of adjoining states, Dr. Mengak has asked us to switch to an early spring trapping season. This started in the spring of 2001. To date this trapping is showing a mixed trend: 2 sites show an increase and 4 show a decrease. While total captures at the 6 sites increased from 43 individuals in 1995 to 50 in 1997, they declined to 20 in 1998 and 6 in 2000. Reasons for this decline are unknown but match a pattern seen before in other studies on wood rats that show large population fluctuations that may reflect changes in food, weather, and/or birth rates. See detailed wood rat analysis in Appendix H of this report.

Rock vole: Dr. John Pagels of Virginia Commonwealth University has been conducting searches for the rock vole in Virginia. These inventories trap likely habitats of shaded, cool, and moist rocky (talus) areas with flowing water nearby. He has instructed most of the District biologists in identifying potential habitat and how to trap for this species. Considerable effort has been expended in suitable habitat areas on the Mt. Rogers NRA, Warm Springs, Dry River, and Deerfield Ranger Districts, but no additional rock vole occurrences have been discovered. To date only one rock vole location has been found in Virginia. This occurrence is on the Warm Springs Ranger District and is managed as a Special Biological Area (MA 4).

Water shrew: Dr. Pagels has also conducted inventories for water shrews in Virginia and has provided training to District biologists in identifying potential water shrew habitat and setting traps to determine presence/absence. Habitat requirements of this species are similar to those of the rock vole (shaded, cool, moist streamsides). To date the only occurrences of the water in Virginia are on the Warm Springs Ranger District in the same watershed as the rock vole and in the Laurel Fork area. Forest Service biologists have trapped many other potential habitat areas but to date have had no success in finding other locations.

RECOMMENDATION No changes to plan direction are recommended.

MONITORING ITEM **TIMBER**

MONITORING Did the volume sold from suitable timberland in any one year exceed the

QUESTION(S)? Average Annual ASQ? Was the total volume sold from suitable land for the first decade less than the decade's ASQ?

MONITORING LEVEL Validation

THRESHOLD OF ACCEPTABLE CHANGE None. Adjust ASQ during next planning period.

FINDINGS The Revised Plan established an ASQ of 330 million board feet (mmbf) over 10 years or an average annual ASQ of 33 mmbf. The following table shows that the trend in timber volume sold across the George Washington National Forest.

Timber Volume Sold on George Washington N.F.

Year	Volume Sold (MMBF)
1993	34.2
1994	29.2
1995	20.5
1996	26.1
1997	19.2
1998	10.1
1999	15.0
2000	10.1
2001	9.9
2002	129
2003	13.6

RECOMMENDATION No changes to plan direction are recommended.

MONITORING ITEM **TIMBER**

MONITORING QUESTION(S)? Based on volume harvested, are timber yield coefficients used in FORPLAN for existing stand yield tables accurate?

MONITORING LEVEL Validation

THRESHOLD OF ACCEPTABLE CHANGE None. Use to adjust coefficients for the next Plan revision.

FINDINGS See findings in Appendix E to this report.

RECOMMENDATION No changes to plan direction are recommended.

MONITORING ITEM **TIMBER**

MONITORING QUESTION(S)? Are the opening size limits needed to meet wildlife habitat or visual quality objectives used more often than the maximum size limit of 40 acres?

MONITORING LEVEL Implementation

THRESHOLD OF ACCEPTABLE CHANGE	Actual size limit as determined by wildlife habitat or visual quality is exceeded at least 10% of the time an opening is created.
FINDINGS	Maximum size limits for "green" sales have not been exceeded per review of each project-level environmental analysis.
RECOMMENDATION	No changes to plan direction are recommended.
MONITORING ITEM	**TIMBER**
MONITORING QUESTION(S)?	1. Are harvested Forest lands restocked within five years following final harvest? 2. Are modified shelterwood harvest cuts regenerating forests to desirable species?
MONITORING LEVEL	Effectiveness
THRESHOLD OF ACCEPTABLE CHANGE	Evidence that land is not restocked within five years following harvest. Evidence that natural regeneration is not becoming established to meet minimum number of stems per acre for modified shelterwood cuts.
FINDINGS	Plantation survival reports and TRACS certification show that all regenerated stands are stocked with desirable or acceptable species.
RECOMMENDATION	No changes to plan direction are recommended.
MONITORING ITEM	**TIMBER**
MONITORING QUESTION(S)?	Were pine types successfully regenerated to the appropriate forest type?
MONITORING LEVEL	Effectiveness.
THRESHOLD OF ACCEPTABLE CHANGE	More than 10% of the pine regeneration was not to the appropriate forest type.
FINDINGS	Plantation survival reports and TRACS certification show that all regenerated stands are stocked with desirable or acceptable species.
RECOMMENDATION	No changes to plan direction are recommended.
MONITORING ITEM	**TRANSPORTATION**
MONITORING QUESTION(S)?	Based on acres harvested, are road construction and reconstruction coefficients used in FORPLAN accurate?
MONITORING LEVEL	Validation
THRESHOLD OF ACCEPTABLE CHANGE	None. Use to adjust coefficients for the next Plan revision.

FINDINGS	Tables in the appendices to this report show the amount of acres sold or harvested as well as miles of road constructed or reconstructed in each of the fiscal years. See also transportation discussion in Chapter 1 of this report.
RECOMMENDATION	No changes to plan direction are recommended.
MONITORING ITEM	**TRAVEL MANAGEMENT**
MONITORING QUESTION(S)?	Have existing closed roads been opened to public use? Have existing roads currently open to public use been closed?
MONITORING LEVEL	Implementation
THRESHOLD OF ACCEPTABLE CHANGE	Variance greater than 5% from amount of open and closed roads in TIS at the time the Record of Decision is signed.
FINDINGS	On the George Washington and Jefferson National Forest, in FY 2001, a total of 11 miles of road were obliterated. In FY 2002, 2.1 miles of road were obliterated, and in FY 2003, 2.3 miles of road were obliterated.
RECOMMENDATION	No changes to plan direction are recommended.
MONITORING ITEM	**TRAVEL MANAGEMENT**
MONITORING QUESTION(S)?	Is the existing compliment of open roads adequate to meet the experiences desired by the motorized recreation user on the Forest?
MONITORING LEVEL	Effectiveness
THRESHOLD OF ACCEPTABLE CHANGE	Comments reveal hazards, resource problems or user conflicts.
FINDINGS	Yearly traffic counts are no longer being done. Some traffic counters have been secured, and some traffic counting efforts will be reinitiated in FY04. There are a number of calls on a regular basis regarding maintenance needs. Many of these deal with winter maintenance (snow removal, etc.). These types of activities are not carried out on Forest-Owned roads due to lack of equipment and funding. There have also been a number of naturally-occurring flood events which have caused a severe strain on the road maintenance budget. Obvious hazard situations are addressed as they occur. Priority is assigned based on the need.
RECOMMENDATION	No changes to plan direction are recommended.
MONITORING ITEM	**VISUALS**
MONITORING	Are visual quality objectives being met in the Management Area? How

QUESTION(S)?	well do the contrast-reducing techniques help in meeting the visual quality objectives?
MONITORING LEVEL	Effectiveness
THRESHOLD OF ACCEPTABLE CHANGE	Any human-caused deviations from contrast reducing techniques.
FINDINGS	VQOs are being met throughout the Forest. The effectiveness of contrast-reducing techniques was monitored in 2001 on a project as potentially seen from Morris Hill Campground on the James River. The project met its adopted VQOs with all observations favorable.
RECOMMENDATION	No changes to plan direction are recommended.
MONITORING ITEM	**WILDLIFE**
MONITORING QUESTION(S)?	Based on National Forest Stamps sold, are projected big game hunting trends accurate?
MONITORING LEVEL	Validation
THRESHOLD OF ACCEPTABLE CHANGE	None. Use to adjust demand estimates for the next Plan revision.
FINDINGS	In West Virginia, total resident hunting license sales in 1987 were 308,026 and in 2002 were 741,796. National Forest Stamp sales over the same periods were 136,721 in 1987 and 59,220 in 2002. Resident hunting license sales in Virginia in 2002 were approximately 296,250, compared to sales of 355,000 licenses in 1987, a drop of 58,750 licenses (17%). Over approximately the same period (1989-2000), National Forest Stamp Sales have mirrored that decrease by dropping from 130,000 to 87,278, a decrease of 42,722 stamps, or 33%. The states maintain data that allow us to compare statewide hunting pressure with that on the National Forests. It is recommended that we continue to work with the VDGIF and the WVDNR to further refine these data collection systems.
RECOMMENDATION	No changes to plan direction are recommended.
MONITORING ITEM	**WILDLIFE**
MONITORING QUESTION(S)?	What are the projected population trends for big and small game species on the Forest?
MONITORING LEVEL	Validation
THRESHOLD OF ACCEPTABLE CHANGE	None. Use to adjust model population trend estimates for next plan revision.

FINDINGS See discussion of big game MIS species in appendix G to this report.

RECOMMENDATION No changes to plan direction are recommended.

MONITORING ITEM **ACCOMPLISHMENT REPORTING**

MONITORING QUESTION(S)? Are the estimated outputs projected in the Plan being achieved? Are the costs of implementing the Plan consistent with those projected? How much is being clearcut? What are the acres by cutting method within management areas?

MONITORING LEVEL Implementation

THRESHOLD OF ACCEPTABLE CHANGE Variance greater than 25% between projected and actual outputs for MAR items and dollars spent for costs. Yearly variance greater than 10% between Plan acreage projections and actual accomplishments for clearcut acres sold. Variance greater than 25% between Plan projections and actual accomplishments for Timber Harvest Methods sold other than clearcutting.

FINDINGS The FEIS (page 2-69 for alternative 8A) provides a Plan objective of 300 acres/year of clearcutting and a total of 2,000 for other even-age methods. The following table shows the acreage sold by year.

GEORGE WASHINGTON NATIONAL FOREST ONLY
ANNUAL SOLD ACRES - METHOD OF CUT

Fiscal Year	Clearcut	Shelterwood	Selection	Thinning	Salvage	Other	Total
1993	428	941	111 (OSR)	0	982	0	2,462
1994	123	848	130 (OSR)	30 (GS)	980	30	2,141
1995	50	756	187 (OSR)	75	789	1	1,858
1996	168	773	85 (OSR)	60	711	0	1,797
1997	89	526	0	169	798	5	1,587
1998	12	88	10	25	688	1	824
1999	157	659	296	208	220	0	1,540
2000	0	702	0	61	127	0	890
2001	5	610	76	164	30	28	913
2002	0	685	0	146	35	183	1,049
2003	0	832	0	57	113	30	1,032

OSR= Overstory Removal, GS= Group Selection

Since 1991, the George Washington (GWNF) and Jefferson National Forests (JNF) have been aggressively using "alternative cutting practices" such as modified shelterwood, deferment cuts (two-aged), conventional shelterwoods, and group selection to regenerate hardwood stands to meet Forest Plan resource objectives. The practice of clearcutting is utilized only when it can be clearly demonstrated to be the "optimum" method for biological reasons. For total acres harvested in FYs 1999 & 2000, clearcutting was only done on three percent and four percent, respectively. The following table illustrates the change in harvest methods for fiscal years 1988-2000 for harvested volume across both forests.

George Washington and Jefferson National Forests Combined

ANNUAL HARVEST ACRES - METHOD OF CUT

Fiscal Year	Clearcut	Shelterwood	Selection	Thinning	Salvage	Total	Cut Volume (mmbf) 1/
1988	5,323	498	236	657	197	6,911	69.2
1989	4,394	282	192	434	40	5,342	62.9
1990	3,923	204	270	434	331	5,162	62.5
1991	3,359	336	376	930	1,094	6,095	69.4
1992	2,217	835	1,395	1,163	495	6,105	57.3
1993	1,613	1,237	819	1,002	997	5,668	60.6
1994	1,212	1,533	442	1,033	1,211	5,431	57.3
1995	723	1,623	194	844	1,038	4,422	55.7
1996	405	1,253	207	372	945	3,182	45.1
1997	257	1,588	825	296	1,931	4,897	34.2
1998	158	1,195	120	766	503	2,742	35.3
1999	65	1,051	156	227	727	2,226	36.5
2000	90	944	298	598	439	2,369	27.5
2001	105	902	166	522	262	1,957	23.1
2002	5	774	68	262	104	1,213	19.0
2003	4	731	57	119	104	1,015	16.9

1/ Beginning in FY 1996 volume was sold using cubic foot measurements for both sawtimber and small roundwood with conversion to MBF based upon a standard Regional conversion factor of 0.55 when converting from CCF to MBF. The above table shows a conversion of 0.66 to more accurately reflect the true volume for actual timber measurements to enable a long-term comparison.

During this period of time, "modified shelterwood" has become the predominate harvesting method. Along with the monitoring of regeneration following the modified shelterwood to determine the effects of the residual overstory on resultant regeneration numbers and species, we have also initiated implementation monitoring to determine the actual basal area of trees 6" DBH and larger and 9" DBH and larger remaining immediately following completion of harvest cutting units to determine if our timber designation procedures and administration is at the desired standards.

The definition of modified shelterwood in the George Washington National Forest Plan Revision (Glossary-5) indicates that about 15-25 basal area of midstory and overstory trees will be left standing and these trees will cover a range of diameters but are usually 8 inches DBH or larger.

In addition, the Indiana Bat Biological opinion for the GWNF and JNF and the Forest Plan Amendments require timber activities to leave all shagbark hickory trees and a minimum average of 6 snags or cavity trees (9 inches and larger) per acre (except where such trees pose a safety hazard) to promote potential summer roost habitat. For the group selection harvest method, no provision for minimum number of snags is required due to the small opening size (less then two acres). In clearcut harvest units, the required snags or cavity trees may be scattered or clumped, but will average 6 per acre.

In February and March of 1999, the SO-Timber Staff visited 13 cutting units that had been harvested during the last couple of years using the modified shelterwood or similar cutting method to determine the average basal area (BA) and number of trees remaining per acre after timber harvesting. In most cases, 10 individual plots were taken in each unit with trees being tallied with a 10 factor prism and # of trees per acre being determined by a DBH conversion factor. The following table indicates pertinent information.

MODIFIED SHELTERWOOD PLOTS - REMAINING TREES

Ranger District	Date	Sale Name & Unit #	Ave. BA per ac. all trees > 6" dbh	Ave. # Trees/ac. > 6" dbh	Ave. # Trees/Ac. >9" dbh
Deerfield	2/25/99	Hiner Hollow # 1	37	73	26.7
Deerfield	2/25/99	Hiner Hollow # 2	31	35.5	22.3
Deerfield	2/25/99	Barn Hollow # 1	30	31	31.0
Dry River	3/02/99	Tower Salv. 2 # 1	14	27.3	10.8
Dry River	3/02/99	Tower Salv. 2 # 6	13	19.8	13.2
Warm Springs	2/26/99	Apron # 4	33	35.5	28.9
Warm Springs	2/26/99	Double Eagle # 2	24	36.7	10.2
Warm Springs	2/26/99	Double Eagle # 3	17	17	10.8
Pedlar	3/04/99	Rucker Lap # 2	47	47	37.1
Pedlar	3/04/99	Greasy Cable # 3	46	83.3	40.3
Pedlar	3/04/99	Greasy Cable # 4	38	51.5	31.6
New Castle	3/02/99	Nutter Mtn. # 1	17	50.4	7.4
New Castle	3/02/99	Sand Pit # 1	19	26.7	20

All units visited had sufficient average leave BA to mesh with the indicated leave BA for modified shelterwood and all units visited have sufficient number of trees per acre to meet stipulations of Indiana Bat BO. Timber designation procedures are sufficient to provide reliable outcome.

In 2450/1920/2670 letter dated July 9, 1999, the Timber Staff Officer provided "Residual Tree Measurement Protocol" direction to the Districts for determining and documenting the remaining average residual trees per acre upon completion of timber harvesting for each even-aged cutting unit including salvage with targeted residual basal area (BA) less than 20 BA. The following chart indicates monitoring of sales is meeting the direction in the protocol from July 9, 1999, to date:

MODIFIED SHELTERWOOD PLOTS - REMAINING TREES

District	Date	Sale Name & Ranger Unit #	Ave. BA per ac. all trees > 6" dbh	Ave. # Trees/ac. > 6" dbh	Ave. # Trees/Ac. >9" dbh
Deerfield	6/18/99	Barn Hollow # 1	22	16	16
Deerfield	8/16/99	Barn Hollow # 3	14	13	13
Deerfield	8/16/99	Barn Hollow # 4	15	14	11
Deerfield	12/8/00	Hamtig # 1	33	40	30
Dry River	12/17/99	Tower Salv. # 1	17	38	12
Dry River	12/17/99	Tower Salv. # 2	18	38	16
Dry River	12/17/99	Tower Salv. # 3	25	35	22
Dry River	12/17/99	Tower Salv. # 4	25	42	22
Dry River	4/12/00	Tower Salv. 2 # 2	22	41	14
Dry River	12/17/99	Tower Salv. 2 # 3	26	43	20
Dry River	4/20/00	Tower Salv. 2 # 4	26	55	15
Dry River	1/4/00	Rainman Salv. # 1	31	66	27
Dry River	9/26/00	Rainman Salv. # 2	15	26	16
Dry River	11/14/00	Spring Grouse # 1	11	21	11
Dry River	10/18/00	Spring Grouse # 2	9	15	12
Dry River	10/18/00	Spring Grouse # 3	23	40	27
Dry River	9/26/00	Spring Grouse # 4	10	17	7
Dry River	9/26/00	Spring Grouse # 5	12	19	9

District	Date	Sale Name & Ranger Unit #	Ave. BA per ac. all trees > 6" dbh	Ave. # Trees/ac. > 6" dbh	Ave. # Trees/Ac. >9" dbh
Dry River	9/26/00	Spring Grouse # 6	19	26	10
Dry River	9/26/00	Spring Grouse # 7	19	23	13
Dry River	9/26/00	Spring Grouse # 8	19	18	18
Dry River	9/26/00	Spring Grouse # 9	17	28	24
Dry River	10/5/00	Stinger Salv. # 1	12	25	12
Dry River	10/5/00	Stinger Salv. # 2	14	24	11
Dry River	5/11/00	Stinger Salv. # 3	24	52	16
Dry River	4/26/02	Shoe Salv. 2 # 1	19	49	22
Dry River	4/26/02	Shoe Salv. 3 # 1	19	39	19
Lee	7/16/99	Powderhouse # 1	23	27	24
Lee	3/23/00	Powderhouse # 2	11	16	10
Lee	12/7/99	Powderhouse # 3	13	23	3
Lee	8/24/00	Powderhouse # 4	15	29	12
Lee	12/9/99	Mine Run Salv. # 1	9	22	5
Lee	12/27/00	Mine Run Salv. # 2	8	16	9
Lee	12/29/00	Panhandle 814 # 8	13	26	9
Lee	2/6/01	Rocky Ridge # 1	21	23	19
Lee	3/1/01	Rocky Ridge # 2	16	16	10
Lee	2/5/01	Rocky Ridge # 3	20	24	20
Lee	5/4/01	Anderson Ridge #1	17	23	13
Lee	4/30/01	Anderson Ridge #2	21	23	16
Lee	7/10/01	Rocky Ridge 1 #2	14	15	15
Warm Springs	11/12/99	Sand Trap # 1	43	69	47
Warm Springs	11/12/99	Double Eagle # 1	27	21	10
Clinch	11/5/99	CMB Skidder # 2	21	28	19
New Castle	1/3/00	Nutters Mtn. # 1	15	37	14
New Castle	1/3/00	Nutters Mtn. # 2	14	31	14
New Castle	10/2/00	Nutters Mtn. # 3	20	28	14
New Castle	1/3/00	Wildlife # 1	17	44	15
New Castle	1/6/00	Sand Pit # 2	33	40	24
New Castle	10/3/00	Peters Mtn. # 1	20	32	25
New Castle	6/27/01	Peters Mtn. # 3	22	27	21
New Castle	12/4/00	Peters Mtn. # 4	21	36	19

As indicated, all units visited had sufficient average leave BA to mesh with the indicated leave BA for modified shelterwood and have sufficient number of trees per acre to meet stipulations of the Indiana Bat BO. Monitoring continues to indicate that timber designation procedures are sufficient to provide reliable outcomes. Monitoring will continue per direction in the residual tree measurement protocol.

RECOMMENDATION

No changes to plan direction are recommended. Historically since 1987, there has been a decreasing trend in the amount of clearcuts offered for sale and sold and an overall increasing trend in the amount of other even-age methods. These trends are expected to continue. Implementation procedures for Modified Shelterwood are sufficiently refined to provide for desired leave basal areas while meeting the stipulations in the Indiana Bat Biological Opinion.

CHAPTER 3

MONITORING AND EVALUATION OF PLAN GOALS, DESIRED FUTURE AND STANDARDS

During the course of the year, staff has been monitoring the implementation of the Forest Plan's goals, Desired Future Conditions, standards and guidelines, herein referred to as standards.

Based upon the findings in Chapter 2, staff are not recommending any Forest Plan amendments. Staff specialists continue to question some of the monitoring questions themselves, saying that they are not providing any useful information.